

1 SUPREME COURT OF THE STATE OF NEW YORK
2 COUNTY OF NEW YORK

3 NATASHA AUSTIN AND NICOLE AUSTIN,

4 Plaintiffs,

5 -against- Index No. 10215/00
6 Volume I

7 DAIMLERCHRYSLER CORPORATION,
8 WESBURY JEEP EAGLE, INC.,
9 MARIBEL ORTIZ, AS INTENDED
ADMINISTRATRIX OF THE ESTATE
OF JOSE A. SIERRA, DECEASED,
GRACE H. EVANS AND LISA N.
EVANS,

Defendants.

10 _____/

11

12 The videotaped deposition of JUDSON

13 B. ESTES, a witness in the above-entitled matter,

14 taken before Melinda S. Moore, (CSR-2258), a Notary

15 Public, at 840 West Long Lake, Suite 200, Troy,

16 Michigan, on May 26, 2005, commencing at or about

17 1:58 p.m.

18

APPEARANCES:

19

Greene, Broilett & Wheeler

20 BY: CHRISTINE D. SPAGNOLI

100 Wilshire Boulevard

21 Suite 2100

P.O. Box 2131

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23

Appearing on behalf of Plaintiffs

24

25

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1 APPEARANCES, Continued:

2 Herzfeld & Rubin
BY: MAUREEN FOGEL
3 40 Wall Street
New York, New York 10005

4
5 Appearing on behalf of Defendant
DaimlerChrysler Corporation

6 Chrysler Corporation
Office of the General Counsel
7 BY: GREGORY D. McMAHON
800 Chrysler Drive
8 Auburn Hills, Michigan 48326

9 Appearing on behalf of Defendant
DaimlerChrysler Corporation

10

11 VIDEO TECHNICIAN:

12 JAMES WALKER, Reitman Video Specialists
(248) 344-4271

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1 Troy, Michigan

2 May 26, 2005

3 * * * * *

4 VIDEO TECHNICIAN: Today's date is May the

5 26th, 2005, and we're on the record at 1:58 p.m.

6 This is the video deposition of Mr. Judson Estes,

7 and we are at the offices of Miller, Canfield in

8 Troy, Michigan. This is the matter of Austin vs.
9 DaimlerChrysler, et al.

10 Could counsel put their appearance on the
11 record, please.

12 MS. SPAGNOLI: Christine Spagnoli
13 representing the plaintiffs.

14 MS. FOGEL: Maureen Fogel from the law firm
15 of Herzfeld & Rubin representing DaimlerChrysler
16 Corporation.

17 MR. McMAHON: Gregory McMahon for
18 DaimlerChrysler.

19 * * * * *

20 J U D S O N B. E S T E S

21 after having been first duly sworn by the Notary
22 Public, was examined and testified on his oath as
23 follows:

24 * * * * *

25

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1 EXAMINATION

2 BY MS. SPAGNOLI:

3 Q Could you tell us your name, please.

4 A My name is Judson Bert Estes.

5 Q And are you currently an employee of the

6 DaimlerChrysler?

7 A Yes.

8 Q Where are you physically housed?

9 A In the Auburn Hills DaimlerChrysler Technical

10 Center.

11 Q How long have you been employed by DaimlerChrysler?

12 A Nineteen years.

13 Q So that means you predate the merger between

14 Chrysler and Mercedes-Benz?

15 A Yes.

16 Q Okay. What is your educational background?

17 A I have a bachelor's degree in physics.

18 Q Okay. From where did you get your degree?

19 A Wayne State University.

20 Q And when did you finish that degree?

21 A 1986.

22 Q What positions have you held since you became

23 employed at Chrysler?

24 A I started in the impact crash film analysis area and

25 I progressed to the impact analysis at Chelsea

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1 Proving Grounds, and then I went from Chelsea to
2 Jeep and Truck Engineering, where I was in vehicle
3 crash test program management. I went from there to
4 the Jeep Assembly Plant in Toledo. I went back to
5 Jeep Engineering in Detroit, where I was design and
6 release for our seat belts and steering column, and
7 then my most recent assignment was at Auburn Hills
8 in the corporate quality.

9 Q Okay. For what period of time did you work in
10 impact analysis? And I would take that up to your
11 time before you went to the Jeep Assembly Plant in
12 Toledo.

13 A I was in impact analysis and impact test, running in
14 one capacity or another, from 1986 until 1998.

15 Q Okay. And since you've -- let me withdraw. You
16 said you went to the Jeep Assembly Plant in Toledo.
17 What did you do at that plant?

18 A It was called interior leader, and that's a
19 responsibility for the interior parts of the XJ Jeep
20 vehicle.

21 Q And then when you came back to Jeep Engineering in
22 Detroit, you said you were a design and release
23 engineer for seat belts and steering columns; is
24 that right?

25 A Design and release supervisor for seat belts and

1 steering columns.

2 Q Okay. So with respect to specifically any role that
3 you've had that involved impact analysis or crash
4 test analysis, that's from your early days up
5 through 1998; would that be correct?

6 A Yeah. I think it's '98 when I stopped.

7 Q Okay. And during your time in impact crash analysis
8 or vehicle crash test program management, during
9 that time did you have a role in reviewing and
10 preparing and running crash tests that involved
11 various Jeep Cherokee and Grand Cherokee vehicles?

12 A Yes, I did.

13 Q Can you tell us what the earliest vehicle, Jeep
14 vehicle you were involved with as far as crash
15 testing?

16 A The '96 Grand Cherokee.

17 Q Okay. And when did you work on the '96 Grand
18 Cherokee, during what period of time?

19 A Previous to its launch, the '96 Grand Cherokee, in
20 late '94 through through mid-'95.

21 Q Okay. And then were you also involved in crash test
22 performance and analysis involving the 1997 Jeep

23 Grand Cherokee?

24 A Yes, I was.

25 Q Tell us, if you can, just generally what the

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1 procedure is for requesting a crash test, in other

2 words, who initiates the testing request.

3 A The test request is written by the vehicle

4 development crash test engineer, and that initiates

5 the crash test sequence.

6 Q And then does that request get transmitted -- and

7 while you were at the impact analysis center, does

8 that get forwarded to the crash test management

9 program to then set up the test?

10 A The test request gets sent to Chelsea Proving

11 Grounds in order for it to become on the schedule

12 for the crash tests.

13 Q And then who actually arranges for the vehicles and

14 gets the tests set up and performs the tests?

15 A The tests are performed by the Scientific Labs

16 personnel at Chelsea.

17 Q Okay. And was that a role that you filled at some

18 point in your career at Chrysler?

19 A Actually running the vehicle crash tests at Chelsea,
20 I did not do.
21 Q Okay. Did you assist in making arrangements for
22 crash tests to be conducted?
23 A I worked at Chelsea on the film analysis section for
24 the full-size cars, the entire vehicle. All I did
25 was the film analysis section while at Chelsea,

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1 running the tests.
2 Q Okay. And your work in film analysis, just give us
3 briefly a description of what you did with respect
4 to that type of analysis.
5 A The film analysis works so that you can trans --
6 transform the camera into a transit and use the
7 camera lens like a transit to identify unknown
8 objects in the field of view. When the car comes in
9 and is impacted, you don't know where it is so you
10 take the cameras and transmit them into a transit
11 and run a series of calculations to identify the
12 location, the roll, pitch, yaw and the X, Y, Z of
13 the camera, and take that data and then calculate
14 where the car is relative to the ground and where

15 things on the car or in the car are relative to the
16 car axes coordinates, and so those coordinates are
17 calculated, and that's what you do in film analysis,
18 is set up the cameras, set up the coordinates and
19 then calculate relative motion between the ground,
20 axis of the coordinates and the targets of interest
21 on the car are.

22 Q Okay. And does that assist you in verifying the
23 speed of impact and the various --

24 A The speed of impact is verified with an
25 electronic -- an optical trap timer.

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1 Q Okay. The film analysis allows you to do what with
2 respect to evaluating the performance of the
3 vehicle?

4 A The performance of the vehicle in a crash test, you
5 can calculate the dynamic crush. That is the
6 primary metric that's produced by film analysis.

7 Q Okay. And is dynamic crush routinely recorded in
8 the crash test reports?

9 A Yes.

10 Q Okay. You said that you then progressed to impact

11 analysis at the Chelsea Proving Grounds, and I
12 believe you said that was on full-size vehicles that
13 you did that work?
14 A The impact simulator at Chelsea, and that's not on
15 full-size vehicles. That's on a much smaller
16 version of it. The simulator uses only the interior
17 of the vehicle.
18 Q Okay. And which vehicles did you work on when you
19 were in impact analysis at Chelsea?
20 A So many, I can't recall them all.
21 Q Okay. Would these be things testing like the seat
22 belts and seating systems and --
23 A Those are among the things that are tested on the
24 simulator.
25 Q Okay. When you went to -- from Chelsea to Jeep and

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1 Truck Engineering, what year did you start there?
2 A '94, as I recall.
3 Q And this is the beginning of your work managing the
4 crash test program for the '96 and '97 Jeep Grand
5 Cherokees?
6 A Yes.

7 Q Did you -- when you went to work in 1994 in the Jeep
8 and Truck Engineering as the crash test program
9 manager for the Grand Cherokee, at that time did you
10 review and become familiar with the crash tests that
11 had been performed on the earlier model Grand
12 Cherokee vehicles?

13 A There is a process where you take the new engineer
14 and explain to them what the status the program is
15 in its development, and in that process you become
16 familiar with the previous tests and what the status
17 of the vehicle and its development phases are.

18 Q Okay. And so is 1994 when you first became familiar
19 with any prior testing on the Grand Cherokee model
20 vehicles?

21 A Yeah. Yes, that's the primary part where I started
22 to be responsible for the Grand Cherokee testing.

23 Q Okay. So up until that time, even though you were
24 in -- generally working in impact analysis, you had
25 not been exposed to crash testing on the Grand

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1 Cherokees that had occurred in the early 90's?

2 A I would have seen some of the films in the course of

3 our analysis. The analysis that you perform, you
4 don't look at much what's on the film except for the
5 targets of interest where you're trying to perform
6 the work that was requested, so I had seen films,
7 I'm certain, of which I cannot recall which ones
8 because I never looked into the details of the film
9 beyond the aspects of which I was focused on while I
10 did the film analysis work.

11 Q Okay. And is there -- let me withdraw. Have you
12 ever given a deposition before?

13 A Yes.

14 Q How many times?

15 A Twice, I think.

16 Q Do you recall the names of either case that you gave
17 depositions in?

18 A No.

19 Q Did either case involve a Jeep Grand Cherokee?

20 A I believe one did, but I'm not real clear.

21 Q Okay. How long ago did you give the last
22 deposition?

23 A A couple years ago.

24 Q Okay. When you first took over as vehicle crash
25 test manager for the Jeep Grand Cherokee in 1994,

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1 who had been responsible for the crash test program
2 for that vehicle before you?

3 A My memory is a little unclear on that, and there
4 were two people in the office before me and when
5 there was more work than the two guys could handle,
6 it's unclear as to who was actually the signatory on
7 that. I didn't sign the compliance documents which
8 is the final responsibility. The manager I worked
9 for, Ed Zylik, was responsible for the activities of
10 those two men, but exactly which one of them was
11 doing what before I got there, I couldn't say.

12 Q And who were the two people? What were their names?

13 A Vic Hannawi and Don Mallet would have been the two
14 men that had some participation in it before I
15 arrived.

16 Q And you were working with those people in the same
17 department prior to 1994; is that right?

18 A No. I was not working in that department prior to
19 1994.

20 Q Okay. Were you -- your department of impact
21 analysis would provide information for the crash
22 test impact management people? Is it the impact
23 department?

24 A The Impact Analysis Group provided the requested
25 film analysis to the program managers in Vehicle

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1 Development, then some of the design and release
2 engineers for the Restraints and the Structures
3 Group.

4 Q Okay. And the crash test management people
5 interacted with who with respect to the work that
6 they were doing, same people?

7 A The crash test management people interact with the
8 Proving Grounds scheduling groups and the design and
9 release engineers to obtain the proper build level
10 parts to build the vehicles to test.

11 Q Okay. Do the crash test management people actually
12 provide feedback to the program managers on the
13 results of the tests?

14 A Yes, they do provide feedback to the program
15 managers on the status of the impact test program.

16 Q Okay. So when -- as a manager of a crash test
17 program, when you run a test, you provide a report
18 to other people, right?

19 A No, no. Actually each test does not generate a
20 report beyond the Vehicle Crash Test Letter.

21 Typically the program is managed at a level that

22 doesn't generate a report for each and every car
23 that you run.
24 Q Okay. So the Crash Test Letter is done for each and
25 every test you run, though?

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1 A Yes, ma'am.

2 Q And the Crash Test letters are signed by the or --
3 by the crash test manager?

4 A I don't believe they're signed by the manager. I
5 think they're issued by the crash test engineer at
6 Chelsea.

7 Q Okay.

8 A I never did that job but I believe that's where they
9 come from.

10 Q Okay. And do the Crash Test Letters go to the crash
11 test managers?

12 A The program managers in crash test receive the Crash
13 Test Letters.

14 Q Okay. So when you were the vehicle crash test
15 manager for the Grand Cherokee, you got the Crash
16 Test Letters?

17 A Yes, ma'am.

18 Q And then when you got those, you would then provide
19 those to the program development engineers and the
20 release engineers?
21 A Typically you wouldn't provide them the letters; you
22 would talk about a specific result or how the
23 vehicle performed and how -- if the vehicle was
24 going to be modified as a result of those tests.
25 The letters themselves are typically looked at for

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1 the information content they carry and then just
2 that information goes forward, did it pass the test,
3 what was its score, what did it get for crush. That
4 kind of stuff is what's moved forward. The letter
5 itself typically doesn't get a very wide
6 distribution. I'm sure you have a copy of the
7 letter and you can see on the end there's three or
8 four names typically on a Vehicle Crash Test Letter,
9 and that's who it gets distributed to automatically.
10 Q Okay. And when you say that the information -- and
11 you described the information that would get passed
12 on to the development and release engineers -- would
13 that be done orally or would you do it in a writing?

14 A Almost always orally in a meeting.

15 Q Okay. Were there regular meetings held to follow up

16 when crash tests were done on --

17 A Yes.

18 Q And then you as crash test manager for a particular

19 vehicle would go to the meeting along with the

20 development and release engineers?

21 A Yes.

22 Q And then would there -- would you have a discussion

23 what to do next, something need to be changed or --

24 A Yes. There would be an engineering problem-solving

25 task, and we would work through it with the group

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1 there, using their engineering expertise and

2 experience in impact test as to what, if anything,

3 should be done to the vehicles.

4 Q Okay. As the vehicle crash test manager for the

5 Jeep Grand Cherokee, did you have some guidelines

6 that you used in evaluating a performance of the

7 vehicle on a crash test?

8 A Yeah. Yes, there are guidelines.

9 Q Okay. What guidelines can you recall using in the

10 '94, '95 time period as it related to the analysis
11 of the Grand Cherokee's crash test performance?
12 A The primary metrics that we used for 208 compliance
13 we had said we wanted to have a 20 percent margin
14 underneath that, and that was basically our
15 guidelines for evaluating performance, were we under
16 our margin, under the federal requirements.
17 Q Okay. And you mentioned specifically 208.
18 A That's the primary impact test work.
19 Q And that -- when you say 20 percent, 20 percent
20 below what, the level of injury criteria?
21 A There are, in 208, required injury criteria. It's
22 20 percent below the required level where we were
23 targeted at.
24 Q All right. And was that a guideline or was that a
25 policy of the company?

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1 A It was not a written policy at that time.
2 Q Okay. But it was your standard practice?
3 A It was our standard practice.
4 Q And did you have a guideline or a policy with
5 respect to fuel system performance in the '94 and

6 '95 time period?

7 A In the 301 tests, we wished that the fuel system
8 would have zero leaks, and if they had any leakage
9 at all, we considered that to be a failure. In that
10 the 301 system allows, you'd have five ounces of
11 fluid leakage, any fluid leakage in our test was
12 considered to be a failure, and we would rerun the
13 test and modify it to avoid any leakage.

14 Q Okay. In the '94 and '95 time period was there any
15 guideline or criteria with respect to contact
16 between the fuel tank and components such as the
17 axle, shocks, rear suspension?

18 A No, at that time there wasn't any written guideline.

19 Q Was there an understood guideline that -- similar to
20 the 20 percent injury criteria for the 208 test?

21 A What we wanted to do was to get the vehicle to
22 perform up to the standard and exceed it in terms of
23 leakage, and there are certain things you don't want
24 to introduce in the field around the gas tank. We
25 didn't want to have any sharp edges around the gas

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1 tank. We wouldn't want to have any things that came

2 to a point either in a fold or as a mechanical
3 device, but in terms of contact itself, there
4 weren't any guidelines regarding what it should and
5 shouldn't run into, but more along the lines of the
6 shape and formation of the things that it came in
7 contact with.

8 Q Did you have an understanding that if you saw
9 contact but it didn't produce a leak that that would
10 be investigated further by the development or
11 release engineers?

12 A I think in the broadest terms of contact, no,
13 because it's -- it is trapped between two pieces of
14 metal and it is always in contact, so just contact,
15 no; it was contact with a specific item that has
16 like, I said a sharp edge or ability to pierce.
17 Those kinds of items where they had contact, we
18 investigated further.

19 Q In your test reports that the test engineers did and
20 then gave to you as the vehicle test -- crash test
21 manager, were the engineers running the tests asked
22 to document things that they saw that they wanted to
23 alert the downstream people to?

24 A If it's -- if you run the test and there's a visible
25 problem, then the guys at the proving grounds,

1 whether they were the engineers or the union
2 mechanics in build-up and tear-down for that, were
3 instructed to write on their report what they could
4 see. In vehicle crash tests there are a lot of
5 things that you can't see. They get folded, they
6 get compressed, they are hidden from view, and so
7 some of the tests, they'll say, it had a failure, we
8 don't know why, and some of them they'll say it had
9 a failure and you can see it without disassembly,
10 and write down that reason.

11 Q Did you ask them, though, typically if they saw
12 something, to note it in the crash test remarks
13 section?

14 A Yeah, if it's visible and you can see it without
15 disassembling -- they were very well instructed not
16 disassemble the vehicle -- then that was in the
17 remarks.

18 Q And the remarks then would include observations that
19 might raise a concern about the vehicle's
20 performance on the test?

21 A They might.

22 Q Were there any particular things that the engineers
23 were asked to note that ran the crash tests?

24 A I think that there wasn't like a list or there

25 wasn't a series of guidelines. I believe that you

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1 rely on the engineer's good judgement and his
2 training to recognize things that were hazardous,
3 and experience basically tells you is it a sharp
4 edge, has it got a point, in terms of the fuel
5 systems, and there are areas where you want to look
6 to see is the vehicle performing the way I intended
7 it to on the structure of the vehicle, did it have
8 structural things you can tell, did it perform --
9 are the welds connected, you know. These are the
10 kinds of things that an engineer, when they review a
11 vehicle, would look for to determine its
12 performance.

13 Q And then those notes would be -- trigger someone
14 taking a look and seeing whether further
15 investigation needed to occur?

16 A Yeah.

17 Q Okay.

18 A If they were written in the test letter.

19 Q Right.

20 A I'm going to get a glass of water.

21 Q Let me ask you to take a look at a document we
22 marked earlier today. It's Lazarus Exhibit 10. It
23 says Fuel Systems & Impact.
24 A Thank you.
25 Q Have you ever seen this before?

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1 A No.
2 Q Okay. If you would like to take a moment to look
3 through it, do you know who Ginny Fischbach is?
4 A I know Ginny Fischbach.
5 Q Is she someone that you've worked with?
6 A Yes.
7 Q In what capacity?
8 A She was a manager for the truck impact program.
9 Q Okay. Is she someone that you interacted with while
10 you were in Impact Analysis?
11 MS. FOGEL: Objection to the form.
12 THE WITNESS: The -- Ginny Fischbach, I met
13 her first when I came to the Jeep/Truck Engineering
14 Group to do impact management.
15 Q (BY MS. SPAGNOLI): Okay. And what was -- what was
16 the nature of your interaction?

17 A She was a manager in a parallel program on parallel
18 vehicles and sat about 20 feet from me.

19 Q Okay. I would like you to take a look at this, and
20 I'm going to ask you to focus on a couple of
21 specific pages, but just generally let me know when
22 you've had a chance to kind of flip through it and
23 become familiar with the document.

24 While you're looking, I'm going to go ahead
25 and mark a copy of this document as Estes Exhibit 1.

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1 Okay? Having reviewed this document, does
2 it appear to contain test procedures and protocol
3 that existed during the time that you worked as the
4 vehicle crash test manager for the Grand Cherokee?

5 A Yeah. After my cursory review here today, it does
6 appear to contain the same kinds of processes that I
7 ran.

8 Q Okay. And if you look at Proposed Legislation, the
9 page that has that heading, under 5125, do you see
10 at the bottom bullet point it says, "Rule making not
11 expected until late 1997??

12 A Yes.

13 Q And that would appear to place this document at some
14 time predating 1997. Is that a fair understanding
15 of what we have here?

16 MS. FOGEL: I'm going to object to the
17 form.

18 Q (BY MS. SPAGNOLI): Go ahead.

19 A It seems very speculative, but I don't know.

20 Q Is there anything in what you reviewed in this
21 document that appears to you to be a procedure or
22 policy that was not in place in 1994 or '95, '96?

23 MS. FOGEL: Objection to the form.

24 THE WITNESS: I haven't had time to really
25 absorb all of it, and I can't say for sure whether

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1 there's anything in here that I did or didn't
2 normally do. I'd like to really read through it.
3 Q (BY MS. SPAGNOLI): Yeah. Well, why don't we go
4 ahead and take a break and let you read through it
5 with the understanding that I'm going to ask you
6 that question when we come back from the break, and
7 so I'm going to ask you to point out things that you
8 do not believe were policies or procedures prior to

9 1997, so between '94 and '97, okay?

10 MS. FOGEL: May I hear the question read
11 back again, please.

12 (Record read as follows:

13 "Q Is there anything in what you
14 reviewed in this document that appears
15 to you to be a procedure or policy
16 that was not in place in 1994 or '95,
17 '96?")

18 Q (BY MS. SPAGNOLI): Okay?

19 MS. SPAGNOLI: So we'll go off the record.

20 MS. FOGEL: I'm going to object to the
21 form, and I just want to say also an objection to
22 the form, it assumes things that have not been
23 placed into evidence, and that was my objection to
24 the form.

25 MS. SPAGNOLI: Okay. Let's go off the

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1 record and I'll ask you to take a closer look and --

2 THE WITNESS: Is there any specific areas
3 out of these 30 pages that you want me to really
4 look at?

5 Q (BY MS. SPAGNOLI): Well, it's actually -- I realize
6 it's a lot of pages, and I think it's 15 pages all
7 together, and it's a presentation form, so it's
8 actually not a lot of information per page, so I
9 really want you to just take a thorough look at it
10 and tell me if there's something that stands out to
11 you as not being a policy or procedure in place
12 between 1994 and the end of 1996; okay?

13 VIDEO TECHNICIAN: Going off the record at
14 2:30 p.m.

15 (Off the record.)

16 VIDEO TECHNICIAN: We are back on the
17 record at 2:32 p.m.

18 MS. FOGEL: I also just want to state an
19 objection for the record that this document was the
20 subject of some questioning by DaimlerChrysler
21 through Robert Banta, and is a document that has
22 been described by the witness as one that he has
23 never seen before. The purpose that we're here for
24 today with regard to DaimlerChrysler's deposition by
25 additional witnesses is to fill in the gaps of the

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1 information that the plaintiffs represented
2 Mr. Banta was unable to respond to. To now show a
3 document to a witness that he has never seen before,
4 one which Mr. Banta was able to respond to, is
5 outside the parameters of what we're here for today.
6 That being said, we'll allow the witness answer.

7 MS. SPAGNOLI: Okay.

8 Q (BY MS. SPAGNOLI): And, again, Mr. Estes, I'm
9 asking you to discuss this document in the context
10 of your position in '94 and '95 and '96 as the
11 vehicle crash test manager for the Jeep Grand
12 Cherokee which is the vehicle involved in this
13 incident and that we're here about, and so now
14 you've indicated off the record that you had an
15 opportunity to review the material that's presented
16 here, and you made a statement before we went on the
17 record and I just want to get that on the record.

18 Having reviewed this document, do you
19 believe that the items in it reflect policies and
20 procedures that were in place during 1994, 1995 and
21 1996 when you were the manager of the vehicle crash
22 test program for the Grand Cherokee?

23 MS. FOGEL: Objection to the form. You can
24 answer.

25 THE WITNESS: I agree with the philosophy

1 and techniques that's put forth in this document.

2 Q (BY MS. SPAGNOLI): Okay. If you take a look at
3 Fuel System Design for Safety -- it's page 5126 and
4 5127 --

5 A Uh-huh.

6 Q -- the first bullet point says, "Absolute vs
7 potential test failure." Can you explain what that
8 means?

9 A No. I don't know what exactly she meant there.

10 Q Okay. Do you have -- have you used the term
11 potential test failure in the course of your work as
12 a crash test manager?

13 A No, no, neither one of those terms is common.

14 Q "The first point under that heading says, "design
15 for zero leakage," and you've told us that was your
16 expectation and guideline for the 301 test, correct?

17 A Uh-huh.

18 Q And then the next bullet point says, "contact with
19 unfriendly surface is unacceptable." Is that an
20 accurate statement of your policy at that time?

21 A Yeah. As I said before, I tried to define
22 unfriendly in a more technical way, but, yes,
23 unfriendly surfaces are unacceptable.

24 Q And then the next point says, "any contact with tank
25 accessories is unacceptable." Can you tell us what

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1 that meant?

2 A I've never heard it termed as tank accessories quite
3 that way before, and so I'm unclear exactly what
4 that includes. I would have probably gone for a
5 different description, I think, of what I think it
6 includes, but I wouldn't have said accessories. It
7 sort of seems like it was a garnish more than a
8 required part.

9 Q Okay. What part -- what would you have described
10 instead of using the word accessories, components?

11 A Components, subsystems. There's a fuel pump system
12 on top. There's a vent on system on top of it, and
13 contact with those is unacceptable.

14 Q Okay. On the next page, under Fuel System Design
15 for Safety, there's a bullet point that says, "Test
16 issues and post test inspection," and the first item
17 on that list says, "check for secondary problem
18 areas." What does that mean to you?

19 A I don't know what she meant to say there.

20 Q Okay. The next item says, "be careful not to
21 discount as 'anomaly.'" Does that have a meaning to
22 you?
23 A That does have a meaning to me. Because of the
24 small sample size in vehicle crash tests, it
25 happened in one car and I never saw it before, some

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1 people will say, oh, that's an anomaly in a lot of
2 testing, engineering testing where they have larger
3 samples, sometimes the word anomaly or a flyer.
4 That is a response that as the vehicle crash test
5 program manager you can't allow. If it occurred
6 once in any test, you have to design out that flaw.
7 Q Okay. The next item says, "check for post test
8 springback." Can you tell us what that means?
9 A Metal, especially when in complex shapes, when
10 compressed and deformed beyond its limit, will
11 return to its previous shape once the force that
12 compressed it or distorted the metal is removed, and
13 you can see like a bow where things bent and
14 touched, and now after the test, they're separated,
15 and you have to look for those areas where in the

16 dynamic crush of the test contact might have been
17 made but is not currently in contact.
18 Q Okay. And where you see those types of contacts
19 that may have occurred during dynamic crush, is that
20 also something that you then follow up and do
21 further investigation?
22 A Yes.
23 Q Okay. And then "inspect for any contact with the
24 fuel system," that seems to be kind of a catch-all,
25 and that is what you're looking for, correct?

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1 A Yes.
2 Q Okay. I'm next going to show you a document that
3 was previously marked as Exhibit 8 to Mr. Lazarus'
4 deposition, and I will mark this as Exhibit 2 to
5 your deposition.
6 A This one?
7 Q Yeah, thank you. I'm going to grab my copy here.
8 This is a Design Guideline - Fuel Supply. It has a
9 date of January of 1999. Have you ever seen this
10 document before?
11 A No, I have not.

12 Q Do you know who Mark Olex is?

13 A No, I do not.

14 Q Okay. Did you provide any input for the development
15 of a written design guideline for fuel systems?

16 A No, I did not.

17 Q Okay. I'm going to ask you to take a look, if you
18 will, at -- under item number -- on the second page,
19 there's a heading Packaging Clearances. Do you see
20 that?

21 A Yes, ma'am.

22 Q And item No. 6 says, "Axle, bumper, shock, strut and
23 unfriendly surfaces." Okay? Are you with me?

24 A Yes.

25 Q Okay. The second sentence says, "No contact should

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1 occur between these components and the tank during
2 the impact event." Have I read that accurately?

3 A I believe you have.

4 Q Okay. Is that statement an accurate reflection of
5 the guideline that you operated under while serving
6 as the manager of the crash test program for the
7 Jeep Grand Cherokee starting in 1994?

8 A No, it's not.

9 Q Do you have an understanding of when that guideline,
10 became a guideline, if at all, within Chrysler?

11 A No, I don't. This is the first time I've seen it,
12 and it's dated 1999.

13 Q Okay. You told us that you left your position as
14 manager of the crash test program for the Grand
15 Cherokee in '98; is that right?

16 A Yes, ma'am.

17 Q And since then have you had any responsibilities for
18 evaluating impact performance on crash tests?

19 A No, I have not.

20 Q Okay. Have you reviewed any documents in
21 preparation for your deposition today?

22 A Yes, I have.

23 Q What did you look at?

24 A I looked at compliance reports and Vehicle Crash
25 Test Letters.

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1 Q Do you have a list of the reports that you looked
2 at?

3 A I do not.

4 Q Do you have an estimate of how many you looked at?

5 A I would guess it would be four or five.

6 Q And do you have copies of the ones that you looked
7 at?

8 A No, I do not.

9 Q When did you look at the reports?

10 A Yesterday.

11 Q Okay. Did you select them yourself or were they
12 given to you to review?

13 A They were given to me.

14 Q Okay. Can you recall any particular test that you
15 looked at? Is there something that you were asked
16 to review and then you have a recollection sitting
17 here today of what test it was and -- that you
18 looked at yesterday?

19 A It was a series of rear impact tests and development
20 and compliance for the ZJ Grand Cherokee.

21 Q Were the tests that you looked at ones where the
22 vehicle had leakage?

23 A Some of them did have leakage, yes.

24 Q And in those cases -- in those test reports that you
25 looked at where there was leakage, did you try and

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1 recollect the test and whether you could recall

2 what -- why there was leakage?

3 A Yes, I did.

4 Q Were you able to do that on any of the tests you

5 looked at?

6 A On some of them I did remember quite specifically

7 what happened in the test.

8 Q Okay. And other than reviewing the test letters

9 themselves, was there anything else you looked at

10 that helped you recall the events of any particular

11 test?

12 A As I stated before, we looked at the test letters

13 and the vehicle crash test request, which is

14 basically the precursor to the test letter which is

15 after, and the compliance documentation for 1996 and

16 1997.

17 Q Okay. Let's start with the compliance

18 documentation. I'm first going to show you a

19 Compliance Report which we will mark as Exhibit 3 to

20 your deposition. Is this Exhibit 3 that I've

21 presented to you the Compliance Report for the 1996

22 ZJ-body Jeep Grand Cherokee that you reviewed

23 yesterday?

24 A Yes, it appears to be the same.

25 Q Okay. Okay. And just to orient us to what we're

1 looking at, in this -- in this report you signed the
2 fuel system integrity section as the product
3 engineer on July 12, 1995, correct?

4 A Yes, I did.

5 Q And does this report contain the actual crash test
6 letters and requests for the crash tests that the
7 compliance decision was based on?

8 A It appears to. I haven't gone through all of them.

9 Yes, they appear to be here.

10 Q Okay. And with respect to the vehicle that was
11 being certified as being in compliance with the fuel
12 system safety requirements, this was a 1996 ZJ-body
13 Jeep Grand Cherokee, and there's a description of
14 the vehicle characteristics on the third page of the
15 document; is that right?

16 A Yes.

17 Q In the 1996 model Jeep Grand Cherokee, were there
18 any changes in the frame rails of the vehicle from
19 the prior year model?

20 A I don't believe there was. That would have been
21 brought up in our development, and I don't believe
22 there was.

23 Q Okay. Is that -- if a change in the material or the
24 configuration of the frame rails had been made from
25 the '95 model to the '96 model, is that an item you

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1 would have expected to be documented in the summary
2 here regarding the compliance of the vehicle with
3 the fuel system standard?

4 A If the changes were significant and of a large
5 enough level, they should be listed on this
6 discussion page.

7 Q Okay. If it was a change that would be expected to
8 affect the performance of the vehicle on the crash
9 tests, it would be noted; is that right?

10 A Yeah.

11 Q Okay.

12 A Yes, ma'am.

13 Q And in this case we don't see any reference to any
14 changes in the frame rails between the '95 and '96
15 model years, correct?

16 A No.

17 Q Am I right?

18 A There is no reference to the frame rails.

19 Q Okay. There is a reference to a change in the fuel
20 return line between the 1995 and 1996 model years,
21 correct?
22 A Yes.
23 Q Do you have a recollection of what that change was?
24 A No, I don't. That occurred before I was there.
25 Q Okay. You mean the change occurred before you were

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1 there?
2 A Yes.
3 Q Okay.
4 A It indicates it had changed in the 1995 model year,
5 and I came on to test the '96 model year vehicle.
6 Q Okay. And this report is the result of those tests,
7 correct?
8 A The 1996 test.
9 Q Right. Now, in connection with the rear impact
10 performance of the '96 Grand Cherokee, if we look at
11 page 6, does that contain the crash tests that
12 supported your verification that the vehicle was in
13 compliance with the standard?
14 A Page 6 contains the two rear impact crash tests that

15 the compliance document relies on.

16 Q Okay. So in the case of the 1996 Jeep Grand
17 Cherokee, am I correct in understanding that you, as
18 the engineer who certified compliance, relied upon a
19 1991 and a 1992 rear impact test?

20 A Yes.

21 Q And those would have been tests performed on the
22 first model year of the Grand Cherokee; is that
23 right?

24 A They appear to be in the first model year. I did
25 not run those tests myself.

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1 Q Okay. Did you review those tests before certifying
2 compliance of the '96 model year vehicle?

3 A The vehicles, I did not review. We looked at the
4 film and the electronic data, and I spoke to the
5 engineer before who had written this, Ed Zylik, the
6 early ones, and that was the review that I
7 conducted.

8 Q Okay. And you then gathered and attached the
9 relevant documents from those tests --

10 A Uh-huh.

11 Q -- with your report that you signed in July of 1995,
12 correct?
13 A Yes.
14 Q And if we look in the attachments then, if we first
15 look at test 4561, do you see that if you go -- oh,
16 the pages aren't numbered, I'm sorry to say, but
17 about midway through, I see the Safety Test, Vehicle
18 Crash Test Letter for test 4561, 30 mile per hour
19 rear barrier impact, if you could find that page.
20 A You're looking at the Vehicle Crash Test Letter for
21 4561?
22 Q Correct.
23 A Yes, I have it.
24 Q Okay. Now, this vehicle, which is one of the two
25 crash tests that you relied upon to certify the '96

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1 Jeep Grand Cherokee as being -- having complied with
2 the 301 rear impact crash test requirement, involved
3 a vehicle that was a C1 pilot, correct?
4 A Yes, ma'am.
5 Q And a C1 pilot is a vehicle that has been built to
6 production but is before the actual production

7 models are coming off the line; is that right?

8 A The -- as I recall, the C1 pilots are what we called

9 line fill, and they were the pilot cars that are

10 first built as you fill the entire plant

11 manufacturing system, and some of them come off and

12 then you use them for a variety of tests.

13 Q Okay. In this case the vehicle had at least one

14 nonproduction condition, and that was the rear prop

15 shaft was one inch short. Do you see that?

16 A Yes.

17 Q Do you have some understanding of what that meant?

18 A Yeah. I think that the tube that connects the

19 transfer case with the rear axle was not as long as

20 it was intended to be in production.

21 Q Okay. And what would that mean with respect to that

22 part's proximity to fuel system components? Would

23 there be more clearance in this vehicle than on a

24 production vehicle?

25 A No, there wouldn't be. That prop shaft is attached

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1 to a spline, and what it is is it slides in and out

2 of the spline, and the length of the prop shafts are

3 a dynamic thing right at launch, and they're often
4 changed due to the ride and handling characteristics
5 that the last group that touches the car before it
6 goes into production wants, so the fact that it's a
7 little bit shorter or a little bit longer, it still
8 rides on that spline and it's within more or less
9 the exact same place that it would be, no matter
10 what the length is. It only is how far it rides on
11 the spline of the rear axle at suspension travel.

12 Q Okay.

13 A So when this is at full weight, the vehicle will
14 compress the suspension and it will go as far back
15 on the spline, probably no matter what length it is.

16 Q Okay. Now, if we look at the other test, rear
17 impact test that was used to certify compliance,
18 4472 -- if you could find the Crash Test Letter for
19 that.

20 A I don't find it in this package.

21 Q Okay.

22 MS. FOGEL: It should be six pages back --
23 no, no, sorry. I didn't mean to interject, but I
24 just saw something with 4472 on it.

25 MS. SPAGNOLI: Yeah, actually it's not the

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1 Safety Crash Test Letter.

2 Q (BY MS. SPAGNOLI): There is one page of an inter
3 company correspondence dated 12-20-91 that is a few
4 pages past the 4561 letter that we just looked at,
5 and it says "To distribution." Do you see that?

6 A Yes, I do.

7 Q What is this?

8 A This is the dynamic crush analysis from the film.

9 Q Okay. Does this at least tell you what the build
10 condition of the crash test vehicle was?

11 A Yes.

12 Q And do you see that this vehicle for test 4472 had a
13 trailer towing package?

14 A Yes, I do.

15 Q Do you have an understanding of what -- what the
16 trailer towing package involved, what components
17 would be attached to the vehicle?

18 A Yes.

19 Q Can you explain?

20 A The trailer towing package should be a U-shaped
21 bracket that has two arms that go fore-aft along the
22 car on the rear body-in-white rails and a cross
23 piece that has mounted onto it a receiver hitch for
24 a Reese hitch.

25 Q Is it your understanding that with respect to these

1 1993 model Jeep Grand Cherokees, that the trailer
2 towing U-shaped bracket provided some structural
3 rigidity to the frame rails that assisted the
4 vehicle in meeting the 301 crash test requirement?

5 A Could you repeat that question?

6 Q Sure. Is it your understanding that with respect to
7 the 1993 model Jeep Grand Cherokee that was
8 reflected in this test 4472, that the trailer towing
9 bracket that you've just described provided
10 structural rigidity to the frame rails that assisted
11 the vehicle in meeting the 301 rear impact test
12 requirement?

13 A The trailer hitch provides a structural rigidity.
14 All rigidity is not of a benefit, if it increases
15 the stiffness of the vehicle, and often increases
16 the g forces experienced by the vehicle, because it
17 no longer absorbs the energy through crush, so I
18 wouldn't want to categorically state that the
19 rigidity assisted it in passing.

20 Q Did you form an understanding that the trailer hitch
21 bracket that was attached to the vehicle tested in

22 crash test 4472 allowed the vehicle to sustain less
23 rear crush and, therefore, allowed the fuel tank to
24 survive the impact without leaks?
25 A The crush is merely transported to another place.

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1 When you reinforce the one area of the deck, the
2 energy is still going to be absorbed by the vehicle,
3 and it will be transported to the kick-ups in this
4 particular design.

5 MS. SPAGNOLI: Move to strike as
6 nonresponsive.

7 Q (BY MS. SPAGNOLI): Do you need to hear my question
8 again?

9 A Sure.

10 Q Did you have an understanding that the trailer hitch
11 bracket that was attached to vehicle 4472 allowed
12 the vehicle to sustain less rear crush and,
13 therefore, allowed the fuel tank to survive the test
14 without a leak?

15 MS. FOGEL: Can I hear the answer read
16 back, please, also.

17 (Record read as follows:

18 "Q Did you have an understanding
19 that the trailer hitch bracket that
20 was attached to vehicle 4472 allowed
21 the vehicle to sustain less rear crush
22 and, therefore, allowed the fuel tank
23 to survive the test without a leak")
24 Q (BY MS. SPAGNOLI): Can you answer my question,
25 please?

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1 A When you put the reinforcing bracket on there, the
2 crush in the vehicle will still absorb the entire
3 energy of the impacting vehicle, the 301 target
4 trailer. The crush in the car will still occur; it
5 just occurs in a different spot.
6 Q And in occurring in a different spot, did it allow
7 management of the crush so that the fuel tank would
8 not be compromised in the test?
9 A The fuel tank is not compromised in either test with
10 or without the trailer hitch, and the trailer hitch
11 doesn't allow for compromising whether it's there or
12 not.
13 Q So is it your opinion based on your review of these

14 tests -- and, of course, we don't have the test
15 report for the 4472 here -- that the vehicle was
16 able to comply with the rear impact crash test
17 requirement without any reinforcement of the frame
18 rail?

19 A The previous vehicle, 4574, shows that it was built
20 without a trailer hitch.

21 Q I think it was actually 4561.

22 A Okay. Let me find that one.

23 Q Okay.

24 A Does that vehicle have a trailer hitch on it? I
25 think that's the answer to your question. Could you

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1 repeat the question then?

2 Q Sure. Is it your opinion from your review of the
3 documents that we're looking at here for these two
4 tests that the '93 Jeep Grand Cherokee did not
5 require reinforcement of the frame rail in order to
6 comply with the 301 rear impact test requirement?

7 A The '93 Jeep Grand Cherokee did not require
8 reinforcement of the rear frame rail to pass the 301
9 rear impact requirement.

10 Q Okay. If you look at the document for 4472 that
11 we've just looked at, do you see that there's a
12 build condition that says, "Rear axle with track bar
13 bracket shield?" Do you know what that is?

14 A No, I don't.

15 Q Did you have some understanding that that shield was
16 put in place in order to allow the vehicle to pass
17 the 301 rear impact test requirement because there
18 had been tank contact and leaks in vehicles that did
19 not have that shield?

20 A No, I didn't understand that that's the purpose of
21 that shield. Track bars are typically a very
22 friendly surface.

23 Q Did you hear anything when you became manager of the
24 crash test program for the Jeep Grand Cherokee in
25 1994 that the Grand Cherokee had had problems

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1 passing the 301 rear impact test in 1992?

2 A No.

3 Q Did you hear anything about leaks that were
4 resulting in the development crash tests in the
5 Grand Cherokee before it was certified for

6 compliance?

7 A In the '92, '93 time frame?

8 Q Right.

9 A No.

10 Q I'm going to mark as Exhibit 4 a December 3, 1990

11 Status Report, Platform Engineering/Jeep Truck

12 Engineering, 1992-1/2 Model Year ZJ Rear Impact

13 Validation Test. There's a paragraph on the bottom

14 of the first page that I'd like you to read.

15 MS. FOGEL: Before you have the witness

16 read it, would you be so kind as to ask him if he's

17 ever seen it before?

18 MS. SPAGNOLI: Sure.

19 Q (BY MS. SPAGNOLI): Why don't you read it to

20 yourself and let me ask you if you have heard or

21 seen this -- well, first of all, if you've ever seen

22 the document.

23 A No, I've never seen this before.

24 Q Is this a report that would have been available to

25 you when you became manager of the Jeep Grand

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1 Cherokee crash test program?

2 A Typically development tests like this would not have
3 been available to me. It was issued from the
4 Structures Laboratory, and that's -- that is outside
5 of where I was working. The Structures Laboratory
6 is not in Vehicle Development, and this report
7 probably wouldn't have been part of the Vehicle
8 Development documents.

9 Q Okay.

10 MS. FOGEL: Again, I'm going to object to
11 having the witness read sound bites from the
12 document. He's testified that he's never seen it
13 before, and it's outside the parameters of what his
14 deposition is here for today based on
15 representations to the court why Mr. Banta's
16 deposition wasn't sufficient.

17 MS. SPAGNOLI: Well, I think he's here
18 today to talk about the performance of the Jeep
19 Grand Cherokee in crash testing. I think I'm
20 entitled to know whether anyone informed him before
21 he took the job in 1994 that the ZJ rear impact
22 validation testing had demonstrated fuel tank
23 punctures from an unfriendly corner on the track bar
24 mounting bracket in the first model of the vehicle.
25 I'm entitled to know whether that's something he was

1 aware of when he took over the program, or are you
2 saying that I'm not entitled to know that?

3 MS. FOGEL: What I'm saying is you just
4 asked him if he ever saw that document before and he
5 testified that he didn't.

6 MS. SPAGNOLI: Okay. Then I'll ask the
7 next question.

8 Q (BY MS. SPAGNOLI): Did anyone tell you when you
9 took on the job as manager of the crash test
10 development program for the Grand Cherokee that the
11 program level ZJ vehicle had been subjected to rear
12 impact validation tests to verify conformance to
13 Federal Motor Vehicle Safety Standard 301 and that
14 the vehicle did not meet the FMVSS 301 requirements
15 because the fuel tank was punctured by an unfriendly
16 corner on the track bar mounting bracket?

17 A No. There were probably many changes of the nature
18 like this that I was not told of. Once they're
19 instituted in the vehicle, they become current
20 production intent, they're typically not carried
21 forward.

22 Q Okay. So the fact that that had occurred in the
23 development of the vehicle before it was put on the
24 market and validated by your predecessor for the

25 1993 model year was not something that would have

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1 been, you believe, felt to be important to bring to
2 your attention; is that right?

3 A It appears to me, based on this document that you
4 have just showed me now, that the fuel tank issue
5 that was caused by the track bar mounting bracket
6 was modified and fixed.

7 Q Okay. And do you know if that modification or fix
8 is the addition of the track bar bracket shield that
9 is referred to in the letter regarding test 4472?

10 A I cannot say that with certainty, but I assume that.

11 Q Kind of sounds like it's connected to that earlier
12 issue; is that right?

13 A Yes, it does appear to be that way.

14 Q Now, if you look further back in the documents --
15 I'm looking at the Fuel System and Static Rollover
16 Summaries -- for the tests that were attached as
17 part of your Compliance Report for the 1996 Jeep
18 Grand Cherokee -- do you see -- can you locate for
19 me the Fuel System and Static Rollover Summary for
20 test No. 4472?

21 A Yes.

22 Q And can you read for me what the post-test condition

23 notes are that were written in that summary.

24 A Not very well. I believe it says, "Contacted by

25 track bar bracket left front corner. Contacted by

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1 differential housing on rear." It's hard to believe

2 that says rear. There's another mark I cannot

3 interpret.

4 Q Okay. And the differential housing would have been

5 forward of the tank, correct?

6 A Yes.

7 Q And the contact by the track bar bracket left front

8 corner is exactly the same type of contact that's

9 referenced in the development report that we looked

10 at, Exhibit 2, correct?

11 A I believe that that's exactly where they added the

12 shielding to prevent the tank from being punctured,

13 yes.

14 Q Okay. And you're assuming that based upon the fact

15 that this note indicates that there was contact in

16 that location?

17 A Yes. That says "The bracket," and on the same side
18 it has, "This bracket has been modified," and then
19 earlier in the design it talks about a track bar
20 shield. I believe they're all the same part.

21 Q Okay. So based on reviewing these documents, am I
22 correct in understanding that the test 4472, there
23 was contact between the tank and two different
24 components of the vehicle in this test?

25 A That's what's noted in the test summary.

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1 Q Okay. And if you could now flip to the test summary
2 for test 4561, also for this test, also was used to
3 certify compliance of the 1996 Jeep Grand Cherokee,
4 and we -- have you found that page?

5 A Yes, ma'am.

6 Q Okay. And can you read for me what the notes are in
7 the Post Test Condition next to Tank.

8 A This one says, "Contacts: Bumper, TRK bar, TRK bar
9 BRKT [and] tailpipe, axle."

10 Q Okay. Is that tailpipe comma axle?

11 A I think it is a comma.

12 Q Okay. So in the case of test 4561, which you used

13 to certify compliance of the 1996 model Jeep Grand
14 Cherokee with the fuel system standard, there were,
15 in fact, contacts, multiple contacts between the
16 tank and components of the vehicle; is that right?

17 A It indicates there were multiple areas in contact
18 with the tank.

19 Q We have bumper, the track bar, the track bar
20 bracket, the tailpipe and the axle. Those are five
21 different locations of contact, correct?

22 A Yes.

23 Q And then under Straps, can you read what's written
24 there.

25 A It says, "Left J-hook slipped out of slot."

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1 Q What is a J-hook?

2 A There is a hook that holds the strap in place in
3 contact with the body-in-white.

4 Q Does that mean that if the hook slips out of the
5 slot, the tank would become loosened?

6 A It would become -- the straps, when it's in its
7 design condition, hold the tank in place. In the
8 impact test, typically the distance between the two

9 strap ends, which are held with J-hooks one end and
10 a bolt on the other, become foreshortened. There's
11 crush and it would not be unusual for the J-hook to
12 move relative to the body in the slot.

13 Q But it usually doesn't slip out of the slot, right?

14 A It's not -- occurs 100 percent of the time, but it's
15 not unusual for the J-hook to have moved within its
16 slot.

17 MS. SPAGNOLI: Move to strike as
18 nonresponsive.

19 Q (BY MS. SPAGNOLI): Is it unusual for the J-hook to
20 slip out of the slot?

21 A The J-hooks slip out of the slot occasionally.

22 Q Is that an acceptable result in a compliance test?

23 A The J-hooks can be taken out of the slot during the
24 test while still maintaining the fuel tank in its
25 proper place, and review of the film and review of

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1 the electronic data would determine whether that
2 result was or was not acceptable.

3 Q Did you review that film in this case for this test?

4 A I have no specific memory of reviewing that film,

5 but that is how I trained engineers and how I was
6 probably trained when I came on board.

7 Q Okay. Do you know if you actually reviewed the two
8 crash tests that we've been talking about before you
9 certified compliance, or did you rely upon the fact
10 that your predecessor had found those tests to be
11 acceptable?

12 A I would have looked at every film in the compliance
13 documents and relied on the fact that my predecessor
14 had found them acceptable.

15 Q Now --

16 A In the review, you would be looking for things along
17 the lines that would stand out to you that might not
18 have been there.

19 Q Is it correct, sir, that after you certified
20 compliance of the 1996 Jeep Grand Cherokee in July
21 of 1995, that you initiated or suggested that
22 additional work needed to be done to modify the
23 vehicle to improve its performance on the rear
24 impact test?

25 A When we did the '96 Grand Cherokee, they were trying

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1 to introduce a new design for the fuel tank. The
2 subsequent work in '97 was to try to get that fuel
3 tank to pass the compliance tests and the
4 DaimlerChrysler guidelines.

5 Q The work that was initiated to obtain compliance for
6 the '97 vehicle was beyond changing the fuel tank,
7 correct?

8 A There is a suite of changes that came along with
9 that fuel tank change.

10 Q What changes that affected performance?

11 A Performance in what?

12 Q On the 301 tests.

13 A The exact changes, I wouldn't be able to detail
14 them. In a general way, I knew that they included a
15 new kind of tank and a new kind of vent line and a
16 new kind of fuel pump.

17 Q Any other changes that you believe were implemented
18 for the '97 model to improve the performance of the
19 vehicle on the 301 impact tests, rear impact tests?

20 A In the rear impact tests, to get the second vehicle
21 to pass, we added a bracket which was originally
22 part of the trailer hitch onto the '97 Grand
23 Cherokee structures.

24 Q What did that have to do with the change of the fuel
25 tank?

1 A The way the fuel tank is manufactured is different,
2 and the way the fill and vent lines are attached to
3 the tank is different, and the way that those fill
4 and vent lines stayed attached to the tank performed
5 differently from the '96 to the '97 model year.

6 Q What does that have to do with the -- a bracket in
7 the frame rail?

8 A The bracket in the frame rail prevented crush, as we
9 spoke before. It translated the crush to a
10 different part of the car and prevented crush at the
11 attachment of the fill and vent lines to the tank so
12 that they would stay attached.

13 Q Where were the fill and vent lines for the tank,
14 what side of the tank?

15 A Left side.

16 Q Isn't it true that with respect to the 1997 vehicle
17 model Jeep Grand Cherokee, that the reason for the
18 track -- I'm sorry, the reason for the frame rail
19 reinforcement was because of excessive crush that
20 you got on a crash test in 1995?

21 A The crush is the same from vehicle to vehicle. What
22 we saw was the performance of the attachment to the
23 fuel line and vent to the tank. That's where the

24 difference was.

25 Q You don't have a recollection of having an anomaly,

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1 a test involving a 1996 Jeep Grand Cherokee where

2 you had crush in the frame rail that was more

3 excessive than you had experienced in earlier tests?

4 A No, I don't have any recollection of a change in

5 crush from car to car. There was a change in

6 performance with new parts on it that we were trying

7 to put into the '96 vehicles, but I don't recall

8 anything in crush from vehicle to vehicle being

9 different.

10 Q You don't have a recollection of a test where there

11 was what was described as excessive crush after you

12 certified compliance of the '96 model year vehicle?

13 A No, I don't.

14 Q I'm going to hand you what I'm marking as Exhibit 5,

15 which is a March 2, 1995 memo, and Exhibit 6, a

16 Safety Test, Vehicle Crash Test Request. Have you

17 had an opportunity to read both of those documents?

18 A Yes, I have glanced over them.

19 Q Okay. Does this refresh your recollection that

20 there was a test of a 1996 production vehicle that
21 had a crush pattern that was quite different from
22 prior vehicles?
23 A Different, I remember that they would -- there was a
24 change in the way it crushed, but it wasn't
25 excessive.

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1 Q There was excessive fuel leakage in the test that
2 exhibited the different crush, correct?
3 A Yes.
4 Q And where was the leakage from in that tests ZJ8602?
5 A Do you have the Proving Grounds Test Summary for
6 ZJ8602?
7 Q No, sir. I've asked for it and it's not been
8 produced. All I have is the Vehicle Crash Test
9 Request which you can see does not contain any of
10 the information concerning the results of the test,
11 and that's what's been marked as Exhibit 6.
12 MS. FOGEL: I don't believe that's a rear
13 impact crash test, that number.
14 MS. SPAGNOLI: Well, counsel, are you
15 testifying?

16 MS. FOGEL: You said that you asked for
17 it --

18 MS. SPAGNOLI: Right.

19 MS. FOGEL: -- and I'm just telling you
20 that I don't think that that was part of the
21 request. I'll go back and take a look and see.

22 MS. SPAGNOLI: Well, the Crash Test Request
23 says 30 mile per hour rear barrier. I've repeatedly
24 asked. I've been provided with a request that
25 doesn't contain the results of the test. It's been

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1 repeatedly asked for. I've been told I've been
2 given everything.

3 Q (BY MS. SPAGNOLI): So, Mr. Estes, do you know where
4 the leak occurred in crash test 8602?

5 A I don't recall.

6 Q Do you know what the crush was that was different in
7 this 1996 production Jeep Grand Cherokee?

8 A As I recall, the kick ups were almost vertical after
9 the test, which is what I'm trying to remember for
10 this particular test.

11 Q If you look at Exhibit 6, Build Condition, the test

12 8602 was not a test where you were testing the
13 different fuel tank; is that right?
14 A The 1996 co-extruded fuel tank is the description of
15 the new tank, and I think that ZJ8602 was the new
16 tank.
17 Q Okay. The crush that you're referring to in the
18 kick-up area had nothing to do with the different
19 tank, did it?
20 A No.
21 Q Did it?
22 A The crush in the kick-up area did not have anything
23 to do with the specific tank that was in the
24 vehicle.
25 Q So I'm correct?

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1 A Is that what you said, that the tank did not cause
2 the crush in the kick-up area?
3 Q Right, yes. Am I correct?
4 A The tank did not cause the difference in the crush
5 at the kick-up area.
6 Q Okay. So what was going on in this case was a
7 result in the structural components of the vehicle

8 surrounding the tank that led to excessive fuel
9 leakage so that the vehicle in the test did not
10 comply with the standard, correct?

11 A You can't make that leap of faith that the reason
12 for the leakage was due to the performance of the
13 structure until I can see or remember what it was
14 that caused that leakage. The fact that it
15 performed differently, all the vehicles perform
16 within some variation. They have a pattern and
17 sometimes it's a little bit more this way, a little
18 bit that way. To say that the change in that
19 pattern led directly to that leakage, you can't say.

20 Q Well, we know two things about the test from what
21 we've been given. One is that there was leakage in
22 excess of the standard, correct?

23 A Uh-huh.

24 Q And the second is that there was a crush pattern
25 that was quite different from prior vehicles,

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1 correct?

2 A That's the way I described it then, yes.

3 Q Okay. And beyond what we see here, you cannot tell

4 us what it was that caused the different crush
5 pattern in the test vehicle ZJ8602, correct?

6 A I don't remember any causal for that, at the time.

7 Right now I don't remember what the exact cause was.

8 I have a remembrance that one of our tests -- and I
9 believe it was this one -- had a change in the way
10 the pattern was at the kick-ups between the floor
11 and the rear deck. I think that's what I wrote at
12 the time.

13 Q And do you think that that resulting crush pattern
14 allowed greater crush, thereby necessitating
15 structural reinforcements in the subsequent model
16 vehicle?

17 A The car that I'm recalling which -- and as I sit
18 here and think about it, I'm having a little bit of
19 difficulty making sure it was exactly this vehicle.
20 The crush that happened didn't happen around the
21 tank. The tank would have been less crushed if this
22 was the kick-up area geometry that I'm recalling.
23 It moved the vehicle farther up, the rear deck of
24 the vehicle up further and the performance of the
25 rear rails left them perpendicular to the bottom of

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1 the car whereas they're typically not quite that
2 perpendicular. They're actually not that way at
3 all. They're, in fact, crushed rearward back where
4 the tank was, and the one that I remember, which I
5 think is this vehicle, left the rear rails vertical
6 afterwards.

7 Q And can you answer my question whether that crush
8 pattern necessitated a structural reinforcement in
9 the subsequent model vehicle?

10 A No, that crush pattern is not what we were
11 attempting to modify with the reinforcement bracket
12 there.

13 Q Well, what were you attempting to modify with the
14 reinforcement bracket?

15 A The reinforcement bracket on the '97 ZJ was added to
16 prevent the closure of a hole in the rear rail where
17 the fill and vent lines pass through it. It was a
18 pass-through hole.

19 Q So you wanted that hole to stay open so that the
20 vent line and the fuel fill line would not be
21 severed in a crash?

22 A We did not ever see them being severed, but they
23 would have contact from the rail as it would close
24 and deform around it. We wanted to prevent the
25 contact of the frame rail with the fill and vent

1 lines, and the only way we came up with to do that
2 was to add this reinforcing angle bracket.

3 Q And why did you have the fuel line and the vent line
4 routed through the frame rail?

5 A That's a decision that I didn't make, and -- as a
6 vehicle development test engineer. That was done by
7 the architecture and body-in-white guys to where the
8 fill and vent line would go.

9 Q Do you have an explanation for why they chose to
10 route those lines through the frame rail?

11 A I choose not to speculate on their reasons. I don't
12 know exactly why they did. I would only give you my
13 own personal opinion for what might have been their
14 reason, but what their exact reasons were, I
15 couldn't say.

16 Q Are there any other Chrysler vehicles that you're
17 familiar with that routed a fuel fill line and a
18 vent line through a frame rail, a hole in a frame
19 rail?

20 A None that I'm familiar with, but I don't know the
21 details of all our vehicles.

22 MS. SPAGNOLI: Let's take a short break, if

23 that's okay with everyone.

24 VIDEO TECHNICIAN: Going off the record at

25 3:31 p.m.

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1 (Off the record.)

2 VIDEO TECHNICIAN: We're back on the record

3 at 3:37 p.m.

4 MS. SPAGNOLI: I just want to request that

5 we be -- that I be provided copies of the documents

6 that you showed the witness yesterday.

7 MS. FOGEL: Okay. For purposes of the

8 record, everything that was showed to the witness

9 yesterday were already provided to counsel, but I'll

10 identify it for the record, and those were the --

11 those were the Safety Test, Vehicle Crash Test

12 Requests for the vehicles for '96 and '97.

13 MS. SPAGNOLI: Can you give me the test

14 numbers?

15 MS. FOGEL: Yes, I can, 5339, 5380, 40 --

16 5441, all the way to the end.

17 MS. SPAGNOLI: Can you just read the

18 numbers for me?

19 MS. FOGEL: 5493, 5890, 5493. Did I say
20 that one already?

21 MS. SPAGNOLI: Uh-huh.

22 MS. FOGEL: 5681, 5789, 5890, 5927, 5967.

23 MS. SPAGNOLI: And were you -- were these
24 just the test requests or the safety -- the crash
25 test letters.

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1 MS. FOGEL: They were the Vehicle Crash
2 Test Letter and the Vehicle Crash Test Request.

3 MS. SPAGNOLI: Okay.

4 MS. FOGEL: And the only other thing that
5 was showed to the witness was the memo from March of
6 '95, I believe, that you showed to him already and
7 has been marked as an exhibit.

8 THE WITNESS: And the compliance documents.

9 MS. FOGEL: Oh, yes, and the compliance
10 documents for '96, '97 but not the full set that you
11 marked today. It was just the first couple pages.

12 MS. SPAGNOLI: Okay. The letters, what we
13 were just talking about, Exhibit 5?

14 MS. FOGEL: I don't have a copy of the

15 exhibits.

16 MS. SPAGNOLI: I'm sorry.

17 MS. FOGEL: That's correct.

18 Q (BY MS. SPAGNOLI): Mr. Estes, can I just confirm

19 that in terms of the material that you reviewed,

20 other than this letter which references a rear

21 impact test, ZJ8602, you have not seen the Crash

22 Test Letter for that report in your preparation for

23 your deposition; is that right?

24 A Which report?

25 Q 8602. That was not on the list of what was just

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1 read, correct?

2 A The Crash Test Letter and Crash Test Report is on

3 the list that was just read.

4 Q 8602 was on the list?

5 A The vehicle number, ZJ8602, is on the list.

6 Q The Crash Test Letter for 8602?

7 MS. FOGEL: Can we go off the record for a

8 minute?

9 MS. SPAGNOLI: No.

10 MS. FOGEL: I don't want to testify. You

11 can ask the witness.

12 MS. SPAGNOLI: Well, you just read me a
13 list of what you showed him.

14 MS. FOGEL: That's correct.

15 MS. SPAGNOLI: And that did not contain
16 that document.

17 MS. FOGEL: It did not contain that vehicle
18 test number, correct.

19 MS. SPAGNOLI: So the witness is telling me
20 he saw a test letter for VC8602, and I need to know
21 why there's a discrepancy in what you showed him and
22 what he's saying he saw.

23 MS. FOGEL: Fine. Ask the witness to
24 explain.

25 Q (BY MS. SPAGNOLI): Where did you see it?

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1 A The document that you gave me references ZJ8602 and
2 cross references to a vehicle crash test No. 5380.
3 5380 is on the list that you were just read. And I
4 reviewed vehicle crash test 5380 yesterday.

5 MS. FOGEL: I tried to tell you that before
6 but you accused me of testifying.

7 MS. SPAGNOLI: Well, you were testifying.

8 THE WITNESS: That's what those first two
9 columns do. There's vehicle build numbers and
10 there's vehicle crash numbers, and it associates the
11 vehicle build number, which when you're in the
12 engineering community, you talk about which vehicle
13 build number it is and then when it becomes a test,
14 it gets a vehicle crash number.

15 Q (BY MS. SPAGNOLI): Okay.

16 A And the vehicle build number is referenced in that
17 letter as ZJ8602, and that goes to the Vehicle Crash
18 Test Letter VC5380.

19 Q Okay. Was there a crush measurement taken for 5380?

20 A I don't remember. Why don't I look through the
21 document and see if it has it here. It's not there.
22 It's not here. I don't have it in the documents in
23 front of me.

24 Q I'm going to mark as Exhibit 7 crash test VC5380.

25 A Thank you. There was a dynamic crush analysis

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1 performed on 53 --

2 Q Tell me what page you're looking at.

3 A This page, ma'am.

4 Q Okay. Signed by Mr. Roberson (sic) and Mr.

5 Carlisle?

6 A Anderson.

7 Q I'm sorry. Carlisle is the second name?

8 A Yes, ma'am.

9 Q Anderson is the first name. And what was the

10 dynamic crush in this test that was measured?

11 A In the test 5380?

12 Q Right.

13 A It shows dynamic crush of 22.3 inches.

14 Q Okay. Where is there a description of the kick-up

15 crush that you were describing?

16 A It's not written down, and that would have been only

17 in what I was remembering.

18 Q So the test report itself does not contain any

19 description of the crush in the kick-up area of the

20 frame rails that you've described; is that right?

21 A Let's see here. In the very last page, there is a

22 photograph, and in that photograph you can see the

23 vertical rail section that I was describing. It's a

24 terrible little photograph, mind you, but this

25 section here is the rail that I was trying describe.

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1 They should be at an angle which is something like
2 30 degrees as they come up in the pre-test state,
3 and here they are vertical. There were photographs
4 taken of that specific area, and attached here to
5 this document.

6 Q Okay. And as you sit here today, you have no
7 explanation for why the unusual configuration after
8 the crash test occurred in that area?

9 A Well, this is what I wanted to see because I wasn't
10 certain when you had asked me before without this
11 photograph to remind me. It looks to me like there
12 were cold welds, and it's hard to tell from this
13 photograph, but those black spots are classic that
14 the car either -- right there, those welds pulled
15 through, or there were welds around it that were
16 missing. You can't tell from this photograph that
17 sometimes the vehicles have welds that are broken in
18 this area, and they're not supposed to break, but
19 when they do, the vehicle performs like this, and as
20 you can see, the gas tank rises up over the
21 suspension and translates more forward, and that's
22 what you get as a result of it. It's actually in
23 geometry sometimes a favorable thing, but it is
24 different than what it is designed to do.

25 Q Are you saying it's favorable if you have weld

1 failures?

2 A In this case, under the performance of the vehicle
3 in this regard, those weld failures allow it to be
4 less crushed. Now, it's not entirely clear when you
5 look at this other page of photographs, but you can
6 see that the crush has translated for rear impact
7 into the area there by the wheel well, whereas the
8 section around the rear window is typically where
9 the crush occurs, so it's in a different spot. It's
10 moved.

11 MS. SPAGNOLI: Not responsive.

12 Q (BY MS. SPAGNOLI): Are you saying it is a favorable
13 result to have weld failures in a crash test?

14 A In this crash test, the particular welds in that
15 area perform favorably to the 301 requirement of
16 leak test.

17 Q So you're saying Chrysler wants the welds to fail in
18 that area?

19 MS. FOGEL: Objection to form.

20 THE WITNESS: No. The welds are necessary
21 for many other functions in the vehicle. When it

22 performed like this, it was the first time that I
23 had seen it, and that's why I made note of it in the
24 letter, and the first time and the last time that it
25 had occurred, these welds are necessary to the

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1 performance of the vehicle. In the performance of
2 the vehicle in a crash test, they allow a different
3 kind of geometry to be created, which you can
4 interpret as being favorable.

5 Q Did you -- you just said you noted the weld failures
6 in the letter. Where did you do that, sir?

7 A The photographs that are attached to this letter
8 that you gave me.

9 Q No, sir. Where in the test did you note in the
10 letter weld failures in the frame rail?

11 A You can see in the photograph these spots, and
12 that's where I'm seeing it. To have written a
13 description of them, I did not write that into the
14 letter.

15 Q Okay. You just said you noted it in the letter, so
16 that was not an accurate statement; am I right?

17 MS. FOGEL: Objection to form.

18 THE WITNESS: The document that you handed
19 me is labeled the Test Letter, and that's where I
20 see them here.

21 Q (BY MS. SPAGNOLI): Okay. Let me reread your
22 testimony in response to my prior question. You
23 said, "When it performed like this, it was the first
24 time that I had seen it and that's why I made note
25 of it in the letter." You did not make note of the

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1 weld failures in the letter --

2 A No.

3 Q -- true?

4 A I made note of the -- what exactly did we say? The
5 crush pattern was quite different from previous
6 vehicles, and that is the note that I made.

7 Q And that's not in the letter, correct?

8 A The Vehicle Crash Test Letter, it's not in that
9 letter.

10 Q Okay. There's no mention of weld failures in the
11 Vehicle Crash Test Letter, is there?

12 A I don't believe there is.

13 Q Okay. And you're saying that in this test you

14 believe the weld failures that you can tell from the
15 black and white photocopy of the photograph, in
16 fact, enhanced the performance of the 1996 Jeep
17 Grand Cherokee on the 301 rear impact test; is that
18 right?

19 MS. FOGEL: Objection to the form.

20 THE WITNESS: There are what appear to me
21 to be a separation, and these are -- should be
22 welded, and when that occurred, this shape lifted
23 the gas tank higher than it was in a normal impact
24 test.

25 Q (BY MS. SPAGNOLI): And your testimony is that that

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1 was a good result for this tank in this test?

2 MS. FOGEL: Objection to the form. You can
3 answer.

4 THE WITNESS: The result of the tank's
5 movement, it -- I want to say it very clearly.
6 Bringing the tank up and away from the other
7 suspension components does not force it into contact
8 with the axle and the track bar that we had talked
9 about earlier. Lifting the tank has a positive

10 effect of removing it from other objects it may have
11 contacted. That should help the tank perform in an
12 impact test better.

13 Q (BY MS. SPAGNOLI): Better in the sense that the
14 tank is less likely to come in contact with
15 something that could cause a leak?

16 A Yes. If you are able to have any part of the fuel
17 system to not be in contact after the crash test,
18 that is a -- the direction of the philosophy of
19 Chrysler in testing it.

20 COURT REPORTER: Of Chrysler --

21 THE WITNESS: Of Chrysler in testing fuel
22 systems.

23 Q (BY MS. SPAGNOLI): We do not want to have contact,
24 as much as possible, and by removing the tank and
25 moving it to a different position, you minimize the

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1 contact, and that minimizing of contact is what I
2 will technically describe as having been better.
3 You minimize the contact, it's better for the tank.

4 Q And in terms of the Grand Cherokees that you tested
5 and observed having been tested in rear impacts,

6 this was the only test where you got that better
7 result from having the tank move up and away from
8 the suspension components, correct?

9 A The -- this is the only one that I recall that did
10 that. The movement of the tank relative to the
11 vehicle is a design of the kick-up. It's supposed
12 to lift and move the tank. The separation of the
13 rails is what is a different pattern here. The
14 shape of the rails and the forces that are applied
15 to the rails are designed to bend the kick-up over
16 the rear axle and lift and separate the tank from
17 the axle. That's its design intent.

18 When it did it in this particular test, the
19 rails separated, and when they do that, they don't
20 have the same strength, and there was a bend that
21 caused the rails to be vertical post test, and
22 that's what makes it different in this regard.

23 Q Right. And so my question was, that in this case,
24 you got that more favorable result because the welds
25 that ordinarily should have remained intact did not,

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1 correct?

2 A Yes. I think that's my cause and effect analysis

3 from looking at these photographs and my memory.

4 Q Okay. And so in production vehicles, you would not

5 expect the welds to fail, and, in fact, they were

6 not designed to fail, correct?

7 A Yes, they were not designed to fail. They should

8 not have failed, and in production vehicles, that

9 shape of the rail post test, it should have a

10 different shape.

11 Q Okay. And that different shape in all of the other

12 Grand Cherokee tests that you reviewed or saw, after

13 the crash, the tank was in closer proximity to the

14 suspension components than in the test where the

15 welds failed, correct?

16 A The weld failure allowed a different kind of

17 geometry. To say they were closer, I don't think,

18 is an accurate statement, because it's almost always

19 in contact, and I don't have any recollection of any

20 one that's not in contact with the axle or the track

21 bar, but it's the degree of contact and the area of

22 the axle and the track bar, how much of the axle and

23 track bar that are in contact that changes from test

24 to test.

25 Q Okay. You've just told us that, am I correct, with

1 the Grand Cherokee vehicles between 1994 and 1997
2 model years, that you observed either being tested
3 or you reviewed the crash test reports? Are you
4 telling us that in all of those cases similar to the
5 notes that we saw on the two tests where the vehicle
6 was certified in compliance for the '90 -- based on
7 the '91 and '92 tests, that there was contact
8 between the fuel tank and the rear axle and track
9 bar? Because that may have been a really long
10 question and I'll start it over unless you got it.

11 A In all of the tests that I observed, when you have a
12 rear impact event, the fuel tank contacts the rear
13 axle, and for the most part, contacts the track bar
14 in that it is attached to the axle and goes over the
15 axle. I can't say specifically whether every one of
16 them contacted the track bar, but I would -- I have
17 no memory of any one of them not contacting the
18 axle. I believe every one of them contacts the axle
19 --

20 Q And is that --

21 A -- but whether or not they actually touch the track
22 bar on every single test, I'm not certain that's
23 true.

24 Q Okay. Is it true for the '97 model year, that had

25 the addition of the reinforcement bracket to the

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1 left frame rail, that in the crash test you observed
2 for that model year vehicle, the tank also contacted
3 the axle?

4 A In the '97 rear Grand -- rear tests on the '97 Grand
5 Cherokee, the vehicle contacts the rear axle. The
6 reinforcing bracket actually translates the crush
7 into this kick-up area and causes exactly the same
8 phenomenon to occur to a degree that we were looking
9 at in VC5380.

10 Q Okay, wait. I think you may have misspoken. Let me
11 just be sure. I think you said the vehicle contacts
12 the rear axle. I think you meant to say the tank.

13 A The gas tank, the -- in the crash tests, the gas
14 tank will contact the rear axle. When we added the
15 reinforcing bracket, we moved the crush from the
16 rear rail forward in the vehicle to the kick-up
17 areas to more closely mimic lifting and separating
18 the tank from the axle area that takes the crush
19 from the rear deck and it moves it forward into the
20 kick-up areas. When you do that, it more looks like

21 the test 5380 that was a development test.
22 Q Now, earlier you told us that you added the frame
23 rail to keep the hole in the rail from closing up?
24 A Uh-huh.
25 Q And compromising the fuel vent and fill lines,

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1 correct?
2 A Yes.
3 Q Are you now telling us that an additional design --
4 A Well, it's a benefit.
5 Q -- goal, benefit, that you actually contemplated and
6 searched for and attempted to accomplish with this
7 bracket was to change the crush characteristics so
8 that the tank would not contact the axle in the same
9 manner as the prior vehicle designs had done in the
10 crash tests?
11 A When we were looking at solutions to prevent the
12 pass-through hole for the fill and vent line from
13 collapsing, there were a variety of things that you
14 could do. When we judged the quality of each
15 solution, one of them was to prevent the hole from
16 collapsing and another one is to enhance the

17 performance of the tank and the system in the crash
18 test. I don't remember predicting before the test
19 that that would occur. I do remember noting it
20 after the test and saying that it was a good thing
21 and an added benefit for the design change of adding
22 the bracket.

23 Q Okay. How did that enhance the performance of the
24 tank?

25 A What it does for enhancing the performance of the

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1 tank is that it removes the number of things that
2 come in contact with it and minimizes the contact
3 with the rear axle and that lower part of the
4 vehicle, and translates the contact to the upper
5 area of the axle which is the track bar itself and
6 away from the track bar bracket, and away from the
7 shock mounts and on to simply the differential, top
8 of the axle, and the nice round rod that is the
9 track bar because it goes above the axle now instead
10 of staying below, and at the level of the axle in
11 the previous crush where it happened in the rear
12 rails and didn't have the kick-up event that now

13 occurs when you put the reinforcing bracket on it,
14 but to say I predicted that, I don't think I would
15 go there.

16 Q Well, when you say that the change in adding the
17 reinforcement bracket enhanced the performance of
18 the tank because it removed a number of things that
19 it came in contact with, what were the things that
20 you believe the tank no longer came in contact with
21 after you added the reinforcement bracket?

22 A The differential is essentially a pumpkin. In fact,
23 it has a nickname of that. When you hit a ball
24 above its centerline, it tends to slide over it.
25 When the gas tank hits the differential on the

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1 centerline, it tends to wrap around it. The tanks
2 are deformable, and I wanted our tanks to skid above
3 the differential and not have as much impact on the
4 differential as they would have if they had stayed
5 lower, and that is how I think we enhanced the
6 performance of the tank in the test.

7 VIDEO TECHNICIAN: Just a few minutes left
8 on the tapes.

9 THE WITNESS: Are we stopping?

10 MS. SPAGNOLI: Less than five?

11 VIDEO TECHNICIAN: Less than five.

12 MS. SPAGNOLI: Okay. We need to go off the
13 record.

14 VIDEO TECHNICIAN: Going off the record at
15 4:01 p.m.

16 (Off the record.)

17 (Deposition adjourned at or
18 about 4:01 p.m.)

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1 STIPULATIONS

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3 IT IS HEREBY STIPULATED AND AGREED by and

4 between the attorneys for the respective parties

5 hereto that all rights provided by the C.P.L.R,
6 including the right to object to any question,
7 except as to the form, or to move to strike any
8 testimony at this examination, are reserved; and, in
9 addition, the failure to object to any question or
10 to move to strike testimony at this examination
11 shall not be a bar or waiver to make such motion at,
12 and is reserved for, the trial of this action.

13 IT IS FURTHER STIPULATED AND AGREED that
14 this examination may be sworn to, by the witness
15 being examined, before a Notary Public other than
16 the Notary Public before whom this examination was
17 begun, but the failure to do so, or to return the
18 original of this examination to counsel, shall not
19 be deemed a waiver of the rights provided by Rule
20 3116, C.P.L.R, and shall be controlled thereby.

21 IT IS FURTHER STIPULATED AND AGREED by and
22 between the attorneys for the respective parties
23 hereto that a copy of this Examination Before Trial
24 shall be furnished without charge to the attorneys
25 representing the witness testifying herein.

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FURTHER DEPONENT SAYETH NOT:

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JUDSON B. ESTES

Subscribed and sworn to before me
this ____ day of _____, 20__.

Notary Public, _____ County

My Commission expires: _____.

1 STATE OF MICHIGAN)
) ss
2 COUNTY OF MACOMB)

3 I, Melinda S. Moore, (CSR-2258), a Notary
4 Public commissioned and qualified in and for
5 the State of Michigan, do hereby certify there
6 came before me on the date and at the location
7 hereinbefore mentioned, the following named
8 person, to-wit: JUDSON B. ESTES, who was by
9 me sworn to testify truthfully concerning the
10 matters in controversy in this cause; that he
11 was examined upon his oath and his examination
12 was reduced to typewritten form under my
13 supervision; that the deposition is a true
14 record of the testimony given by the witness.

15 I further certify that I am neither
16 attorney or counsel for, nor related to or
17 employed by any of the parties hereto or
18 financially interested in the action.

19 IN WITNESS WHEREOF, I have hereunto set my
20 hand and affixed my Notarial Seal this 20th
21 day of June, 2005.

22

23

Melinda S. Moore, Notary Public

24 Macomb County, Michigan
My commission expires: 9-6-2010

25

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